AMENDMENTS TO THE CLAIMS

This listing will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) An electronic driving device for turning on and off a synchronous pump comprising a synchronous electric motor with a permanent-magnet rotor, comprising:

[[-]] at least a static power switch inserted in series between the motor and an AC electric power supply source; and

[[-]] a processing unit having at least an input receiving a synchronism signal (V) and a control output connected to said static power switch;

[[-]] wherein the electronic driving device is ~~enabled~~ controlled by a signal emitted by a float level sensor and includes an input receiving a signal (α) by a position sensor detecting the rotor polarity and position;

[[-]] wherein the pump turn-on and off is regulated according to the signal emitted by said float level sensor and to a measured difference between a critical load angle (δ), computed in a working condition of the pump in which the signal emitted by the float level sensor corresponds to a high level condition, and a current load angle ~~computed during different working conditions of the pump~~.

2. (Previously presented) The device according to claim 1, wherein said position sensor is a Hall-effect sensor.

3. (Previously presented) The device according to claim 1, wherein the motor comprises rotor poles divided by an ideal plane whose rest position is orthogonal to the position of said position sensor.

4. (Previously presented) The device according to claim 1, wherein said float level sensor comprises a Hall probe.

5. (Previously presented) The device according to claim 1, wherein the float of said level sensor is incorporated in an envelope, externally associated with the body of the pump and the sensor element of said level sensor is housed in the pump body in correspondence with said float.

6. (Previously presented) The device according to claim 5, wherein said float is equipped in its lower part with a permanent magnet.

7. (Previously presented) The device according to claim 1, wherein said pump is an immersion pump.

8. (Previously presented) The device according to claim 1, wherein said electronic device is housed on an electronic board positioned inside the pump body in a position just underlying the float level sensor.

9. (Currently amended) The device according to claim 1, wherein ~~said~~ the critical and current load angles are obtained from a phase displacement between back electromotive force and said synchronism signal (V), said phase displacement being ~~is~~ indirectly measured in said processing unit by detecting the rotor inductance, by means of said position sensor, said rotor inductance being complementary to the back electromotive force.

10. (Previously presented) The device according to claim 1, wherein the pump is immediately turned off if the value of a counter (T2) is greater than a predetermined time limit (Tc) defined for an emergency stop.

11. (Previously presented) The device according to claim 1, wherein said critical load angle (δ) is a mean value among N sampled values.

12. (Previously presented) The device according to claim 1, further comprising a first time counter (T1) that is incremented every time instant wherein the float level sensor is low and

the pump is off to check the inactivity time period of the pump and turn it on for a predetermined short time period.